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ABSTRACT

Perceived causality for events seems to be age-related, the cognitive structures of older children being more complex. The influence of age on interpersonal perception was examined by comparing the preferred causal attributions of youngsters in grades 5-13 for teacher behavior. A pilot study produced eight explanations of teacher behavior: (1) experience and education, (2) affect, (3) modeling, (4) interest in teaching, (5) role expectations, (6) external conditions, (7) educational goals, and (8) professional skills. In two studies, students (N=409) in grades 5, 7, 9, 11, and 13 read and attributed pilot study explanations to descriptions of teacher-pupil interaction. Teacher behavior was varied in a 2 X 2 design with type of interaction (asymmetrical/mutual contingency) and extremity of interaction as factors. Results indicate the attribution of explanations varies with grade, with younger pupils emphasizing role expectations, modeling and affect, while older pupils prefer internal explanations. This pattern of results is independent of variations in the type of interaction. Fifth graders' attributions are different from older students' attributions, suggesting a possible qualitative change of attributions from fifth to seventh grade. (Author/NRB)

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A CROSS-SECTIONAL STUDY OF INTERPERSONAL PERCEPTION[1)]

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Abstract

In two cross-sectional studies the preferred causal attributions of 5th to 13th graders for teacher behavior were examined. 203 (study 1) and 206 (study 2) male and female high school students of grades 5, 7, 9, 11, and 13 read descriptions of teacher-pupil interactions and attributed eight different explanations (experience and education; affect; modelling; interest in teaching; role expectations; external conditions; educational goals; professional skills and abilities), which had been selected in a pilot study.

The behavior of the stimulus person was varied in a 2 x 2 design with type of interaction (asymmetrical/mutual contingency in study 1; changing contingency from asymmetrical to mutual and vice versa in study 2) and extremity of type of interaction (low/high) as factors. The main result of both studies points to different causal attributions depending on age. In particular, fifth-graders prefer the explanations 'affect', 'modelling', and 'role'. This may be explained with the greater dependency and other-directedness of that age group. This pattern of results is independent of the variation of type of interaction.

In a series of studies we were concerned with the question whether different motives are attributed to a person depending on his/her interaction pattern. For theoretical and practical reasons we focused our attention upon the perception and explanation of teacher-pupil interactions (Bierhoff, 1976, 1980; Bierhoff & Bierhoff-Alfermann, 1976; Bierhoff-Alfermann, 1979). In the following we limit our analysis to explanations of social behavior used by naive judges, and focus on attributions of causes for different interaction patterns in the classroom.

The interpretation and causal explanation of behavior has consequences for social behavior. Ask a teacher, why he/she emphasizes discipline in the classroom. The answer might be:

- because of the large number of pupils
  (an explanation in terms of external conditions)
- because of fulfillment of role requirements
  (an explanation in terms of role-induced expectations).

The first explanation implies that a change of teacher behavior is dependent on a change of external conditions, while the second explanation indicates that the attitudes of colleagues might be an important determinant of the teacher behavior in the classroom.

Our basic hypothesis is that person concepts are used flexibly, depending on the interaction pattern of the stimulus person. Invariant implicit personality theories are found primarily with trait judgments (e.g. how honest, sincere, good, or friendly is the person?). On the other hand, psychological explanations of ongoing interactions are adapted to social conditions (Bierhoff & Bierhoff-Alfermann, 1976).

Based on the distinction of Jones & Gerard (1967), we described one person as rather self reliant and powerful, essentially involved in asymmetrical contingencies, whereas another person's actions were presented in terms of mutual contingencies. A description of a person in mutual interaction points out that both parties contribute equally to the interaction process.

Our judges rated the availability of different psychological theories as explanations of teacher behavior. Judges were asked to indicate how true or false they considered each of the given explanations with regard to the teacher described. In most of our studies, five psychological explanations were used:

- external conditions ('The teacher is mainly influenced by external circumstances')
- social reinforcement ('The teacher seeks social approval from his most important reference persons')
- role ('The teacher behavior is determined by the expectations of others')
- unconscious ('The teacher is influenced by an unconscious inner conflict')
- model ('The teacher imitates the behavior of important models').

In five of six studies it was confirmed that 'naive' judges tend to make attributions according to specific characteristics of the person described. The most salient variable was the interaction pattern of the stimulus person presented. One exception to this 'rule' was found in a study with 8th- and 9th-graders from a low-level secondary school. These judges did not distinguish between different interaction patterns, at least according to their mean ratings of the five explanations.

Possible reasons for this result could be found in specific characteristics of the sample. These pupils were younger and their educational level was lower compared with judges in the other studies. Therefore, it is reasonable to assume that the level of socio-cognitive development significantly contributes to differences in person perception.

The use of person concepts shows a significant change in the course of development. The person descriptions of older children are more informative and more differentiated (Secord & Peevers, 1974). In addition, perceived causality for events is age related (Ruble, Feldman, Higgins & Karlovac, 1979), and the cognitive structure of older children is more complex (Saltz, Dunin-Markiewicz & Rourke, 1975). These results support the assumption that the explanation of social behavior by 'naive' judges is age related.

In this report we present the results of two cross-sectional studies with pupils to examine the influence of age on interpersonal perception. In addition, a pilot study was conducted to select adequate dependent variables.

Pilot study

5th, 9th, and 13th graders described two different teachers. The descriptions were tape recorded. Content analysis revealed eight dimensions of explanations of teacher behavior. These eight categories are derived from the free descriptions of 45 pupils, 15 in each grade-level. The explanation can be subsumed under the following categories:

- experience and education
- positive/negative affect
- modelling
- interest in teaching
- role expectations
- external conditions
- educational goals
- professional skills and abilities.

These categories constituted the main dependent variables in the two cross-sectional studies. In addition, we administered evaluative scales and included manipulation checks.

Study 1

203 pupils of three German secondary schools with the highest educational level ('Gymnasium') read the behavior descriptions of two teachers. The pupils were 5th, 7th, 9th, 11th, and 13th graders. The type of contingency (asymmetrical/mutual) and the extremity of the interaction pattern (high/low) were varied. In sum, there was a 5 x 2 x 2 x 8 factorial design with grade and type of contingency as between subjects factors and extremity and type of explanation as within subjects factors. The number of pupils in each condition is contained in Table 1.

Table 1 Number of judges per condition, study 1

	grade				
	five	seven	nine	eleven	thirteen
asymmetrical contingency	28	24	21	12	14
mutual contingency	29	25	24	11	15

The following excerpts from the description of the extremely asymmetrical teacher description may serve as an example of the stimulus material:

'Mr. F began teaching some years ago and teaches among others a class of pupils about 14 years old. Nearly all pupils in his class reject his teaching because he - so they imagine - very rarely takes the wishes of the pupils into account. He is notorious for always enforcing discipline and trying to nip possible disorder in the bud....

The pupils see in Mr. F a teacher whom they respect. Nearly all of them remain passive during his class and try not to enter into discussion with him. When discussions do arise, Mr. F always cuts them short with the excuse that he has to fulfill the curriculum...'

After each description was read, judges were asked to make attributions for the teacher's behavior. They responded on scales ranging from 0 (very unprobable) to 10 (very probable). The specific question was, "Indicate how true or false you consider each of the given explanations with regard to the teacher described. Assess the probability of each of the explanations being false or true." In addition, three trait scales (sympathatic, unappreciative, open-minded) were administered. All judgments were made on graphic rating scales ranging from 0 to 10.

No sex differences in the judgments were obtained. Therefore, the results of boys and girls were combined. A 5 x 2 x 2 x 8 analysis of variance was performed with two between subjects factors and two within subjects factors. A main effect for the explanations was obtained. In addition, two interaction effects were found. The type of contingency x explanations effect ($F = 12.04$; $df = 7/\infty$; $p < .001$) can be seen in Table 2.

Table 2 Mean ratings according to type of contingency of the stimulus person, study 1

Type of explanation	Type of contingency	
	asymmetrical	mutual
experience	5.5	6.4
affect	3.3	2.9
modelling	2.6	1.7
interest	4.4	6.5
role	5.1	5.0
external conditions	4.5	2.9
goals	5.9	6.3
skills	4.5	5.8

A simple effect analysis reveals significant differences for the explanations 'interest in teaching' ($F = 19.15$; $df = 1/\infty$; $p < .001$), 'professional skills and abilities' ($F = 7.24$; $df = 1/\infty$; $p < .01$), and 'external conditions' ($F = 11.09$; $df = 1/\infty$; $p < .01$. This is a typical pattern of results compared with earlier studies (Bierhoff & Bierhoff-Alfermann, 1976).

The second interaction effect grade x explanations ($F = 3.06$; $df = 28/\infty$; $p < .001$) is illustrated in Table 3. According to Newman-Keuls-tests, five of the eight explanations are age related.

Table 3 Mean ratings according to grade, study 1

Type of explanation	Grade				
	5	7	9	11	13
experience	5.8	5.9	6.2	6.4	5.3
affect	4.3	2.9	3.1	2.3	3.1
modelling	3.4	1.7	1.9	1.6	2.1
interest	5.5	5.6	5.2	6.2	4.8
role	6.1	5.6	4.6	4.8	4.1
external conditions	4.3	3.8	3.0	3.3	3.9
goals	5.8	5.5	6.1	7.2	5.9
skills	4.2	4.5	5.1.	6.2	5.8

Figure 1 summarizes the results for the explanation 'positive/ negative affect'. This explanation is preferred by the 5th-graders. The thinking of these pupils is more in terms of feelings. The pattern of results in replicated in study 2.

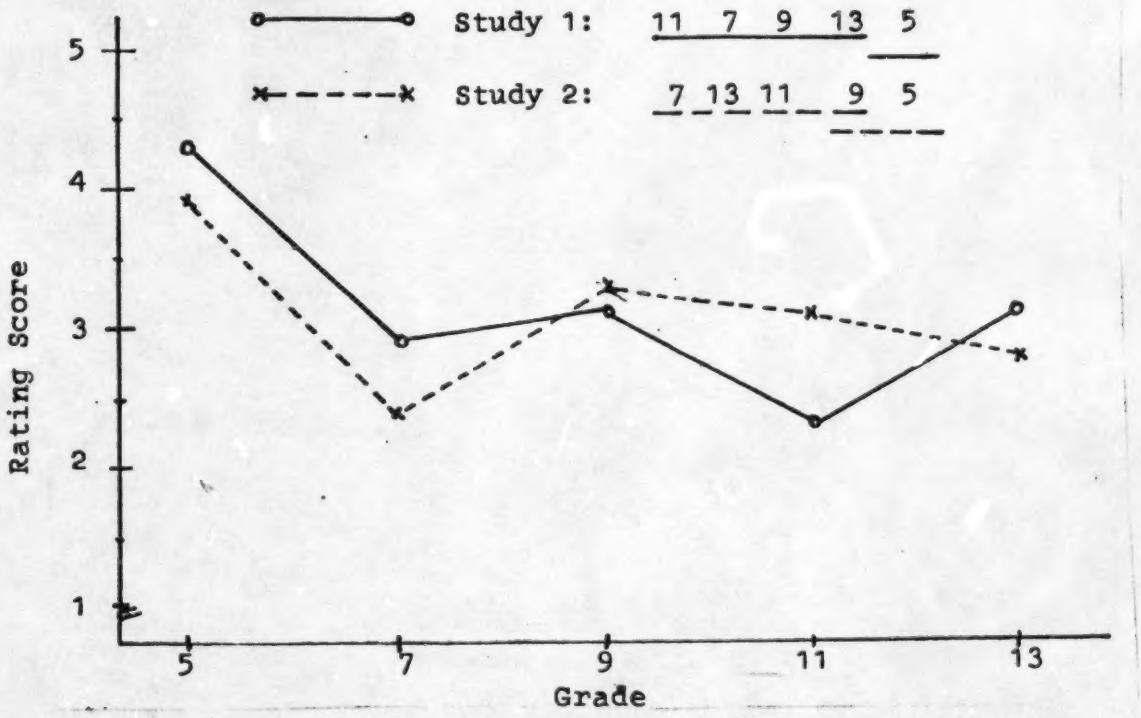

Figure 1. Causal attributions for positive and negative affect as a function of grade in study 1 and 2. (Grades underlined with a common line are not significantly different according to the Newman-Keuls Test.)

The results for the explanation 'modelling' are presented in Figure 2. Once again, 5th graders are separated from the other groups by their stronger preference for this explanation. This pattern of results is replicated in study 2, although the difference is not significant.

The next Figure illustrates an inverted U-type relationship for 'interest in teaching'. The highest values are obtained by 11th graders, and there is a significant decline for 13th graders. This pattern of results is confirmed in both studies. The oldest pupils tend to deny an intrinsic interest of teachers in their profession.

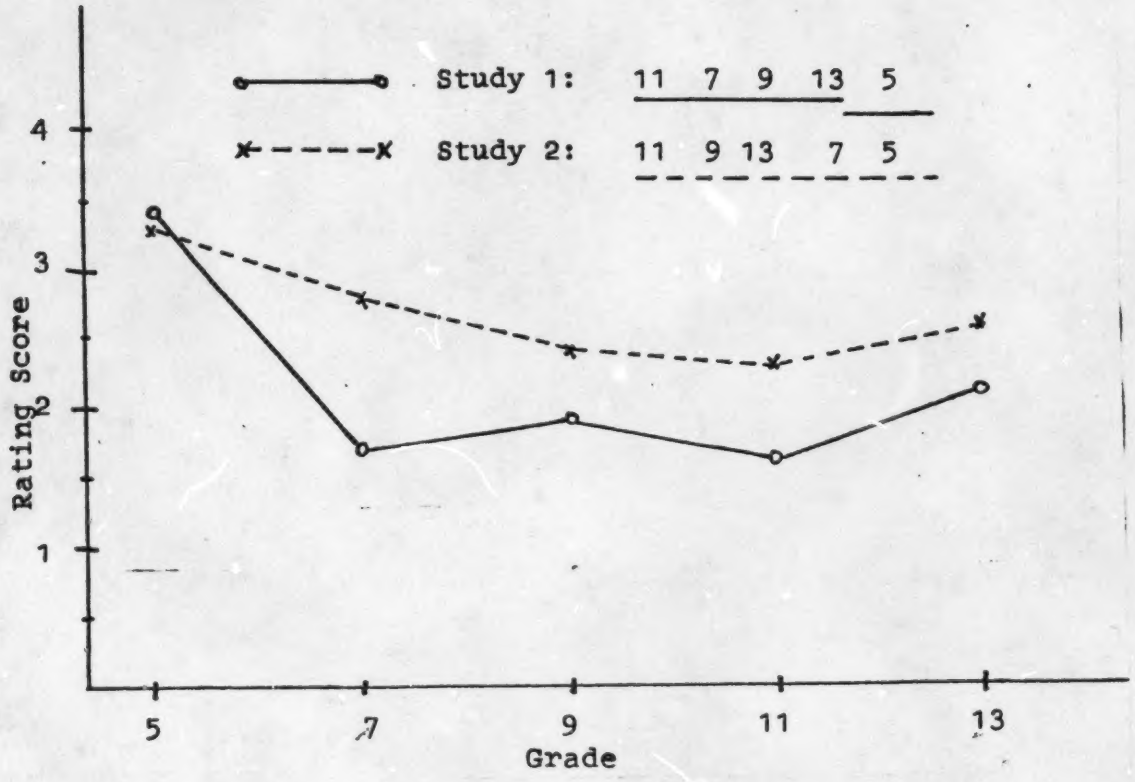

Figure 2. Causal attributions for 'modelling' as a function of grade in study 1 and 2. (Grades underlined with a common line are not significantly different according to the Newman-Keuls Test.)

The 'role' explanation is most frequently used by the two youngest groups. Children of this grade level possibly project their own primarily externally controlled behavior to other persons. As can be seen from Figure 4, the causal attributions for the 'role' explanation are clearly grade related. The decline of role attributions from the 5th grade to the 11th and 13th grade is evident in both studies.

The results for 'professional skills and abilities' are almost a mirror image of the results for 'role expectations'. As can be seen from Figure 5, the preference for 'professional skills and abilities' increases with grade. This tendency is more pronounced in study 1, while study 2 provides no unequivocal replication of this increase with grade.

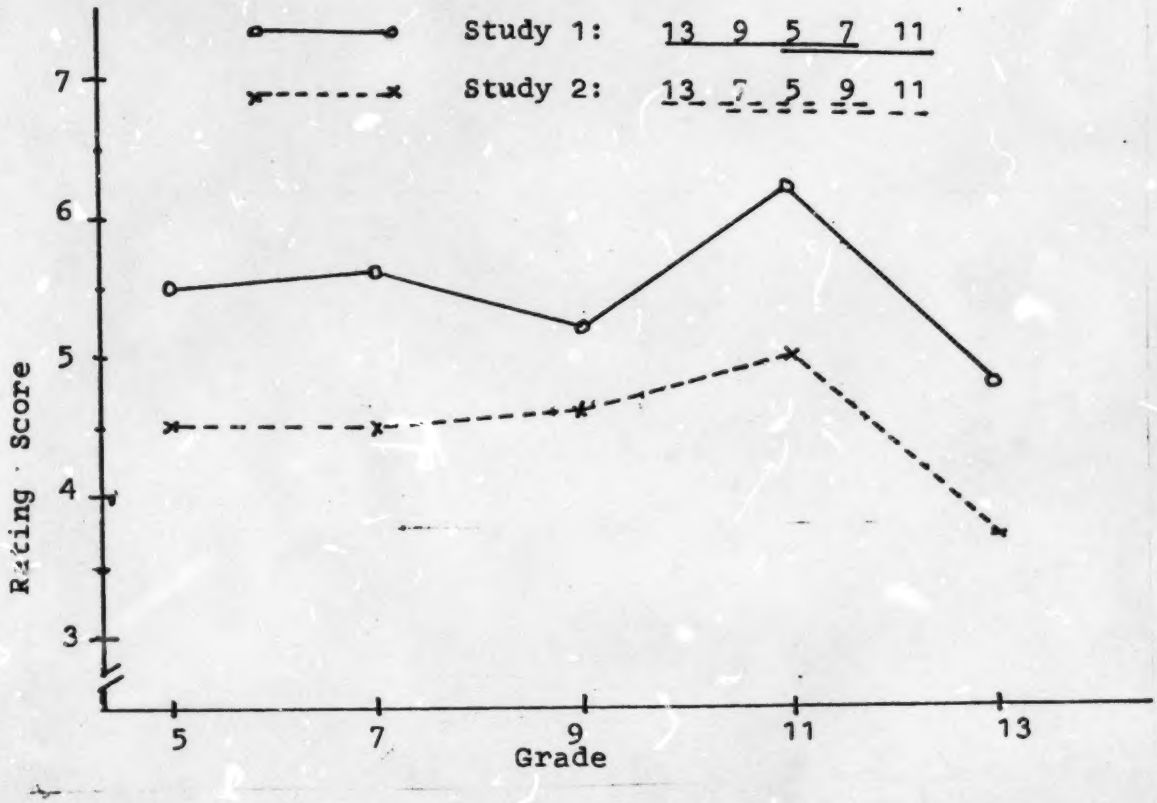

Figure 3. Causal attributions for 'interest in teaching' as a function of grade in study 1 and 2. (Grades underlined with a common line are not significantly different according to the Newman-Keuls Test.)

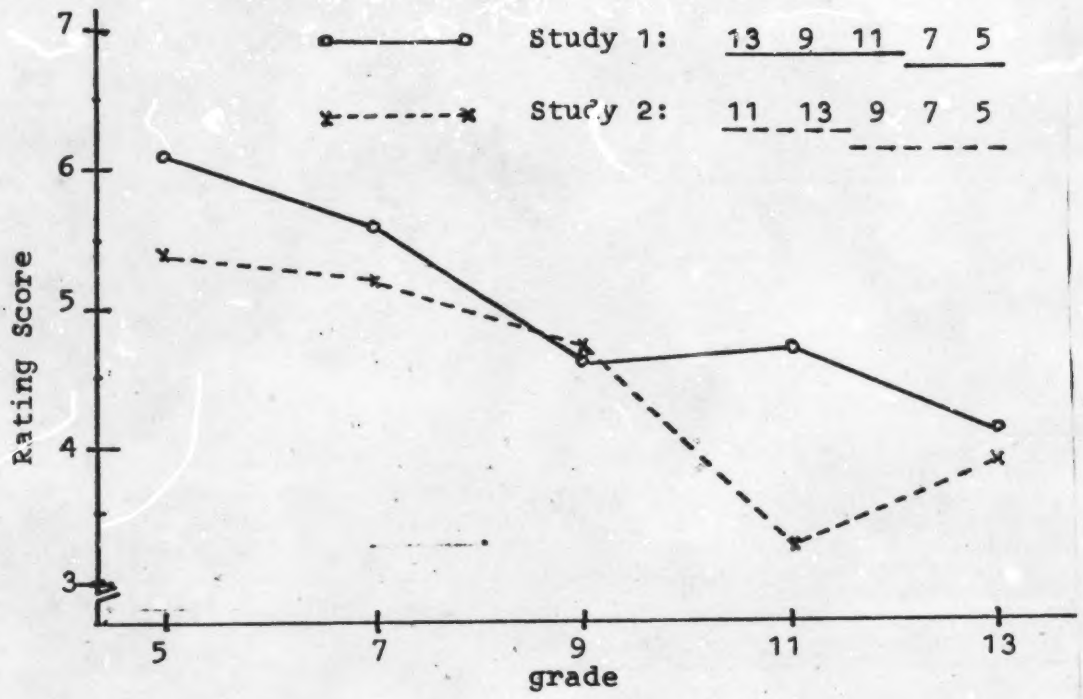

Figure 4. Causal attributions for 'role expectations' as a function of grade in study 1 and 2. (Grades underlined with a common line are not significantly different according to the Newman-Keuls Test.)

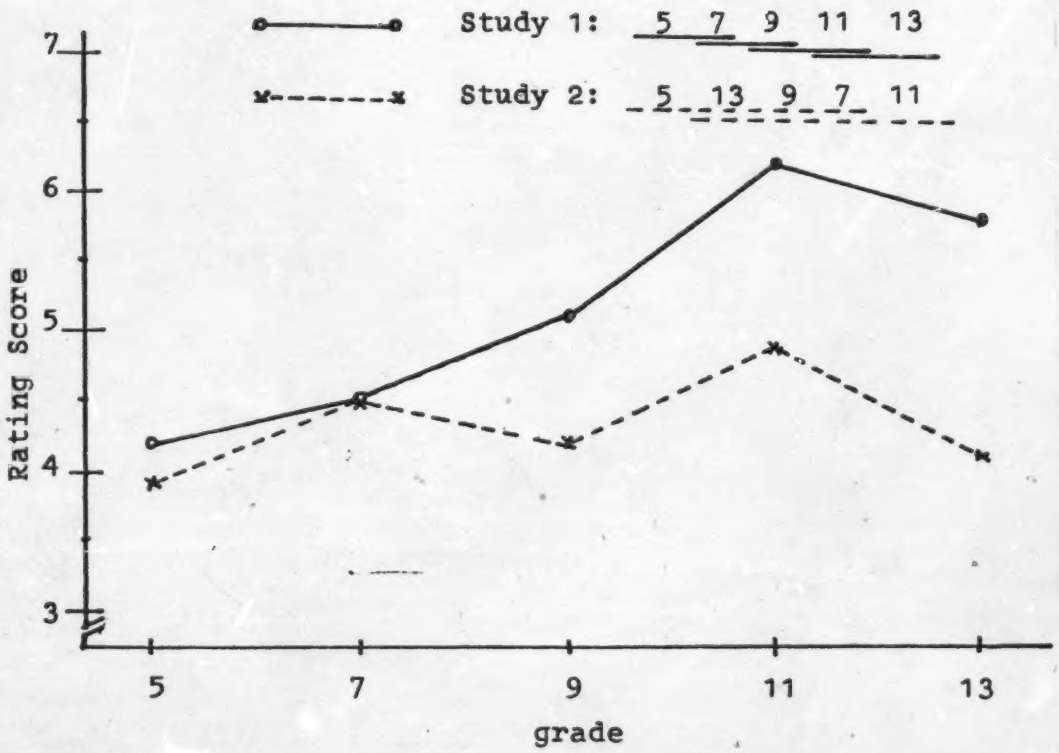

Figure 5. Causal attributions for 'professional skills and abilities' as a function of grade in study 1 and 2. (Grades underlined with a common line are not significantly different according to the Newman-Keuls Test.)

The results suggest that causal explanation is age related. The youngest pupils display a special preference for explanations in terms of feelings, modelling,and role fulfillment. This might be interpreted as an expression of their emotional dependence and other-directedness. In agreement with Weiner & Peter (1973) we find that causal attributions are influenced by the level of socio-cognitive development.

Older pupils emphasize more the category 'interest in teaching', although this explanation is less credible for 13th graders. At least in study 1 there is also an increase in the use of 'professional skills and abilities'as an explanation of social behavior. Presumably the older pupils expect that teachers should possess certain intrinsic qualities - an expectation which possibly is somewhat disappointed in the highest grade.

In addition, we obtained a significant effect for the extremity x type of contingency interaction. This effect is of only marginal importance in the present context and will not be discussed further.

Study 2

The sample of study 2 consists of 206 boys and girls from the same type of secondary school as in study 1. As in the first study, the pupils were 5th, 7th, 9th, 11th, and 13th graders. The second between-subjects factor in study 2 is the extremity of the interaction pattern. The distribution of judges over the ten conditions is summarized in Table 4.

Table 4 Number of judges per condition, study 2

	grade				
	five	seven	nine	eleven	thirteen
low extremity	30	26	24	13	11
high extremity	26	26	24	16	11

In addition, type of contingency was varied as a within-subjects factor. In contrast to study 1, two types of inconsistent behavior were described, namely the change from asymmetrical to mutual interactions and the change from mutual to asymmetrical interactions. Therefore, in one version of the material the sequence was asymmetrical, then mutual contingency, while this sequence was reversed in the second inconsistent version.

The stimulus material was constructed in a similar way as in study 1. As in study 1 the pupils were asked to make attributions for the teacher behavior. The eight explanations delineated from the pilot study were used once again. In addition, evaluative judgments were obtained.

Analysis of variance revealed no sex differences. Therefore, the results of both sexes were combined. A 5 x 2 x 2 x 8 analysis of variance was performed with two between-subjects factors (grade, extremity of type of interaction) and two within-subjects factors (sequence of interactions, type of explanations). The same sources of variance that proved to be significant in study 1 were significant factors in study 2. (In addition, the main effects of grade and type of contingency as well as the triple interaction grade x type of contingency x extremity turned out to be significant). The relevant results are illustrated in Table 5 (type of contingency x type of explanation) and Table 6 (grade x type of explanation).

Table 5 Mean ratings according to type of contingency of the stimulus person, study 2

Type of explanation	Type of contingency	
	asymmetrical → mutual	mutual → asymmetrical
experience	6.0	5.0
affect	2.9	3.3
modelling	2.3	3.0
interest	5.0	3.9
role	4.8	4.1
external conditions	3.7	4.0
goals	5.9	5.0
skills	4.7	4.0

Table 6 Mean ratings according to grade, study 2

Type of explanation	Grade				
	5	7	9	11	13
experience	5.9	5.5	6.4	5.3	4.4
affect	3.9	2.4	3.3	3.1	2.8
modelling	3.3	2.8	2.4	2.3	2.6
interest	4.5	4.5	4.6	5.0	3.7
role	5.4	5.2	4.7	3.3	3.9
external conditions	4.4	4.2	4.5	3.6	2.6
goals	5.6	5.4	6.1	5.3	5.1
skills	3.9	4.5	4.2	4.9	4.1

The grade effect is further illustrated in Figures 1-5. The correspondence of these results in study 1 and study 2 is remarkable. In addition, both studies confirm that type of contingency influences the application of person concepts by 'naive' judges. This replication of the earlier studies (Bierhoff & Bierhoff-Alfermann, 1976) enhances the confidence in the assumption that psychological explanations of ongoing social behavior are used flexibly.

Discussion

Both studies demonstrate that type of contingency is an important determinant of causal attributions. This result is not modified by grade, at least in the samples of pupils from high level secondary schools. If one includes the results of Bierhoff-Alfermann (1979), the hypothesis can be derived that judges, who possess a lower educational level, will not take the interaction pattern into account. Not age but educational level seems to be decisive (in the age range studied).

In addition, the attribution of explanations varies with grade. Five of eight explanations are grade related. Compared with older pupils, younger pupils emphasize the explanations 'role expectations', 'modelling', and 'positive/negative affect'. This can be interpreted as a consequence of a stronger emotional orientation and other directedness of younger children.

On the other hand, older pupils - at least 11th graders - prefer internal explanations. These age differences underline the important influence of socio-cognitive development on causal attributions. Specifically, 5th graders are separated from the older judges. This pattern of results refers to a possible qualitative change of attributions from 5th- to 7th graders.

The age trends are not dependent on the type of stimulus person presented. This is remarkable since the stimulus persons are evaluated rather differently. In study 1, the mutual interaction pattern is evaluated far more positively than the asymmetrical pattern ($F = 163.93$; $df = 1/183$; $p < .001$). In addition, the extremely mutual pattern is evaluated most positively, while the extremely asymmetrical pattern is evaluated most negatively ($F = 4.182$; $df = 1/183$; $p < .05$).

In study 2 evaluative differences are also revealed. Specifically, the teacher who starts with asymmetrical interactions and continues with mutual contingencies is evaluated more positively than the teacher with the reversed sequence ($F = 33.972$; $df = 1/190$; $p < .001$). This result can be interpreted as a contrast effect (cf. Berkowitz, 1960; Hartup, 1964). The sequence of contingencies is an important variable in itself. Inconsistency of behavior is often more the rule than the exception. Therefore, further research is needed to understand the causal attributions when the stimulus person behaves inconsistently. The significant type of contingency x explanations effect in study 2 reveals that the application of person concepts by 'naive' observers varies with the sequence of inconsistent behavior.

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